Nutrition News
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CALCIUM NEEDS OF TEEN AGE BOYS

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There exists a dearth of direct experimental evidence concerning the nutrition requirements of boys eleven to sixteen years of age.

The National Research Council has recognized this period of rapid growth by increasing allowances for many of the nutrients over those recommended for younger or older individuals. Due to lack of direct experimental evidence, calcium allowances have been set by a series of interpolations.

These have assumed average rates of growth, an average calcium content of bone in relation to total body calcium and average values for calcium utilization together with other assumptions, depending upon the method of derivation.

Nine boys, in a study conducted at the University of Illinois during the past three summers, have shown that boys "have what it takes" to cooperate in controlled diet studies. Local boys, sons of professional families of moderate income, were chosen with the hope that they would have consumed a good diet customarily and should not require long pre-feeding periods. In general, this proved to be the case.

Primarily, the study measured the calcium requirements of the "Kalcium Kids," as they termed themselves. Supplementary observations were made on nitrogen and phosphorus balances and on creatinine metabolism.

Natural Foods Used

The basic diet, composed of a variety of natural foods, supplied most of the essential nutrients. Calcium intakes were varied by additions of whole liquid milk and ice cream.

Vitamin supplementation was not used except for 600 to 800 units of vitamin D. This was added for all subjects when it was found, early in the study, that one of the boys was in negative calcium balance, even though receiving generous amounts of calcium and sunshine.

Upon the administration of vitamin D, calcium was retained and retention continued throughout the study. Apparently, there may be children who should not rely on sunshine, even in the summer months, to supply all the vitamin D they need.

When the experiment ended in mid-August, 1946, the boys were between 13½ and 17 years of age. They had gained from 21 to 50 pounds—the average was 34 pounds. In height they had increased 3.3 inches to 6.5 inches since the start of the study in June, 1944.

Caloric needs were adjusted to individual appetites by allowing unlimited but recorded quantities of bread. The individual intakes, as estimated from food tables, ranged from 4100-4900 calories. The highest intake was just sufficient to maintain the weight of the 15½-year-old-boy who was 6 feet, 5 inches tall and weighed 174 pounds.

Food Needs Great

This demonstrates so clearly an instance (of which there are many examples) in which a boy needs more food than his older brothers or father, even though they may be quite active. This food should be supplied without demonstration concerning quantities involved and should be composed of a variety of natural foodstuffs.

Calcium balance studies revealed that during the first two summers these boys retained increasing amounts of calcium as intakes were increased up to double the recommended allowances. During the third summer, when a single high level was fed for eight weeks, it appeared that the recommended allowance would have been adequate.

Apparently, the accepted method of setting requirements by gauging minimal amounts of calcium necessary for maximal retention cannot be strictly applied in this instance. If such were the case, a level utterly impractical to attain would be recommended. For the various boys, between 2 and 2½ quarts of milk or its equivalent would have been required to furnish maximum retentions during tne first two summers.

Doctor Smith

Practical Interpretation

A more practical interpretation would seem to be to stress the need for a quart of milk daily during early grade school years. This would insure adequate storage prior to the sudden prepubertal spurt of growth. Then, when this period of acceleration occurs, the daily milk consumption could well be increased to 1½ quarts.

It is hoped that this experience in conducting balance studies with adolescent boys will inspire many others to conduct similar studies on boys of varied hereditary and dietary background in order that our present recommendations may be placed on the firm experimental basis so badly needed.

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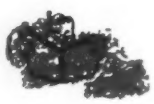
Glances AT NUTRITION RESEARCH

Research on vitamins continues to supply information which aids significantly in the task of combating problems relating to malnutrition. Recent reports are reviewed here briefly.

Vitamin A in Retail Butters—The vitamin A activity of five nationally advertised brands of butter purchased semi-monthly on the retail market was determined and compared with that of a product purchased directly from a local creamery. These samples, 142 in all, were collected over a two-year period.

The study revealed that the butters purchased from July through December contained 63 per cent more vitamin A than did those purchased from January through June. The carotene values were 165 per cent greater in the samples purchased during the "July-December" period. The five commercial butters compared favorably with the butter produced locally. The average yearly vitamin A potency for the six brands was found to be 15,640 I.U. per pound of butter.

—J. Nutrition 33:39 (Jan.) 1947.



Vitamins from Intestinal Bacteria—In a study of the influence of various dietary components on the production of vitamins by intestinal bacteria, the contents of the ceca of experimental rats were analyzed for niacin and folic acid. While dextrin caused the greatest synthesis of both of these B-vitamins, the addition of seven and one-half per cent lactose or fifteen per cent skim milk powder also caused marked increases.

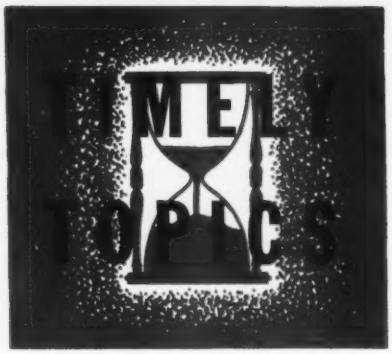
Feeding an excess of niacin brought about increased intestinal production of folic acid. Conversely, feeding an excess of folic acid caused an increase in niacin. That these changes were due to the action of microorganisms is indicated by the fact that such changes could be prevented by feeding sulfa drugs which destroy the bacteria. Of interest is the fact that butterfat added to a "synthetic milk" diet caused more vitamin synthesis than did the addition of corn oil.

—Am. J. Physiol. 148:91 (Jan.) 1947.

Thiamine and Motor Performance—Tests on eight normal men, aged 20 to 32 years, revealed marked deterioration in motor performance (i.e. speed of reaction, coordination, etc.) during a 23-day period on a diet practically free of thiamine, riboflavin, and niacin. Signs of this impairment appeared as early as the eleventh day of the acute deficiency.

The greatest deviations from the normal were found in reaction time and in coordination. Only a slight decrease in grip strength was observed. After 10 days of liberal supplementation with pure thiamine, the performance of the subjects tended to return to normal. Diets only partially restricted in the three vitamins did not reveal these marked changes even though such diets were fed over a period of 161 days.

—J. Applied Psych. 30:359 (Aug.) 1946.



The field of research on human beings is familiar ground for Dr. Janice M. Smith, author of this issue's lead article. Some of her past work includes studies on the biological values of various proteins, the influence of cocoa and chocolate on calcium metabolism, and studies on nutritional status in children. Dr. Smith received her training at the University of Illinois, after which she became a staff member of Pennsylvania State College and, later was associated with the War Food Administration.

To save them from starving, the United States must continue to share its food with other nations. But how can the individual consumer help allay world hunger? As a beginning, at least, he can observe the Five-point Famine Emergency Program which is in effect. The points are:

1) Don't waste food.
2) Eat foods that are abundant.
3) Keep victory gardens producing.
4) Can and preserve food.
5) Salvage and reuse fats and oils.

The Production and Marketing Administration's Nutrition Programs Branch will function in the postwar period. Its Nutrition News Letter will continue to appear each month. The Nutrition Planning Committee, composed of representatives from the nutrition departments of government bureaus, will remain in an advisory capacity to the Nutrition Programs Branch.

PROGRAM WITH A FUTURE — THE SCHOOL LUNCH

By Marcus J. Gordon, Chief, Direct Distribution and Food Preservation Division, Food Distribution Programs Branch, Production and Marketing Administration, United States Department of Agriculture

In the future the school lunch is likely to be as much a part of the American school system as the playground or the gymnasium. For the National School Lunch Program is now an accepted part of our national economy.

As citizens, the School Lunch Program is your concern. As home economists, it is your business.

Influence Food Habits

There is still a widespread lack of information about nutrition values. And food habits which have been established for several generations are difficult to break. But, by its very nature, the National School Lunch Act provides one of the more potent forces for improving the nation's food habits.

The knowledge and habits acquired by children at school have an important influence on food habits of the home and community and upon individual food habits in later life.

Dairy Products Contribute

We feel that no other food group makes so significant a contribution to a nutritionally balanced diet as dairy products do. During the 1946-47 school year, total Federal and local food expenditures will be 120 million dollars. Of this amount, School Lunch Programs will use about 35 per cent for dairy products.

Approximately 80 per cent of this dairy products money will be spent for fluid milk to be used as a beverage. From current reports we have estimated that milk will be served with 689,700,000 meals this year in the school lunchrooms of the nation.

Program Development World Wide

The development of school lunches in this country is part of world-wide trend. As long ago as 1913 national legislation had been enacted in eleven European nations. Since then, others have followed suit in Europe, and now thirteen Central and South American countries also provide national funds for school lunch.

School lunch was an important subject of discussion among world representatives of Food and Agriculture at the conference at Hot Springs in 1943, the Quebec Conference in 1945, and the conference at Copenhagen in 1946. It now figures importantly in the agricultural and educational planning of almost every nation.

Support Increasing

The outlook for expansion of the program in the United States is encouraging. There is every reason to believe that state and local governments will further increase their support for school lunches—that the program will continue to grow, and grow rapidly. A great many communities have come to consider a good school lunch as an essential part of community facilities. Legislation is now under consideration in several states which would provide authority and funds to comply with the long-term requirements of the National School Lunch Act.

More To Be Done

But a great deal remains to be done. Overwhelming evidence shows that the school lunch must become a significantly greater factor in helping children meet their daily food needs. Recent studies show that in Philadelphia the percentage of children's diets which failed to meet acceptable standards ranged from 97 to 42; in Tennessee the range was from 79 to 45 for white children and from 97 to 42 for Negro children; in Chicago it was 93 for Mexican, 89 for Negro, and 67 for white children. In Louisiana only 11 per cent of the white and 3 per cent of the Negro children were receiving an adequate diet.

These are somber figures. The School Lunch Program is important equally as a means of meeting existing nutritional deficiencies and as a medium for effective long-term nutrition education.

HOME ECONOMIST HELPS VETERANS' WIVES

By Mary Britzman, Home Demonstration Agent, Jonesboro, Arkansas

In cities and towns across the country, veterans' wives are struggling with the newly-acquired intricacies of homemaking. Many of these women have had little previous experience.

They need, and they want, advice and suggestions which will help them to become more efficient in their new duties. Here is an opportunity for women who have had home economics training to do a real service for their communities.

At Arkansas State College, in Jonesboro, we had just such a group. Nearly every woman was living in one of the 180 campus trailers. About 50 per cent of them were mothers. In answer to their requests we organized the "Trailer City Club" early in 1946.

Establish Club Room

Our first move was to establish a regular club room. With the help of a faculty wives' organization we located a room which had good potentialities. However, chairs and sewing tables were the only actual equipment.

With real enthusiasm, the novice homemakers began transforming the room. Their aim was to make it a center, not only for instruction, but also for relaxation.

Sewing Machines Loaned

The loan of two electric sewing machines by the Local Red Cross unit proved to be a good start. With these, the women were able to make draperies for their room. These proved so successful that the wives soon were making curtains for the trailers and selling them at a nominal fee.

The proceeds, when added to donations made by various local groups, were enough to make possible the purchase of a small gas range. To complete the "Trailer City Club," the women reupholstered the chairs in the room.

Local Groups Interested

Meanwhile other local groups had become increasingly interested in the project. The faculty wives' organiza-

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—that an exotic new fruit combines the flavors of strawberries and pineapple? It is called the **cherimoya.**

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—that a new, super juicer squeezes 480 oranges per minute? It may be used for lemons and grapefruit, too.

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—that frozen whole milk now is available regularly to armed forces hospitals in the Pacific area?

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—that the vanilla so widely used for flavoring comes from an orchid's tasteless seed pods?

●

—that bread, butter, and cheese are the ancestors of the smörgasbord? In Swedish, **smör** means butter, **ost** means cheese, and **bröd** means bread.

●

—that the world's largest soilless gardens will produce food this year for United States troops in Japan? The total area is 80 acres.

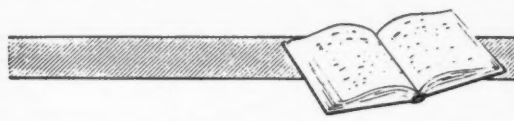
●

—that the major nutrition problem in this country is overeating, a public health expert declares?

●

—that, on an average, each person in the United States consumed an estimated 21 quarts of ice cream last year?

THINGS YOU'LL LIKE TO READ



A valuable addition to the file of any young homemaker will be **Food for the Family with Young Children** (U. S. Department of Agriculture. Washington 25, D. C. AIS-59). The pamphlet shows how a family of four, including two children of pre-school age, can have nutritious meals inexpensively. For practical assistance, the booklet gives a week's menus, a sample shopping order, and tips for cutting down food bills. Single copies are free.

Nutrition — for Young and Old (New York State Joint Legislative Committee on Nutrition. 1946) is an excellent example of what can be done by state governments to further the cause of good nutrition. The 227-page report is a collection of short, pertinent articles, most of them written by well-known authorities in the nutrition field. The material is presented in interesting and comprehensive form. Changing food habits, nutrition goals, maternal and infant nutrition, feeding the aged —these are a brief sampling of the topics discussed here. Copies of this report may be obtained free of charge by writing to State Senator Thomas C. Desmond, 94 Broadway, Newburg, New York.

Henry C. Sherman's **Foods: Their Values and Management** (Columbia University Press, New York, 1946. $3.25) is the most recent in a series of distinguished books by a distinguished nutritionist. Written as a companion piece to the author's THE SCIENCE OF NUTRITION, this material also is presented from a fairly non-technical viewpoint. In **Foods: Their Values and Management,** Sherman places emphasis on what is happening today in the sphere of food supply. From here he goes on to take up each food group separately. But he stresses the interrelationships between the food groups. The book closes with a discussion of international aspects of the food situation.

HOME ECONOMIST HELPS VETERANS' WIVES

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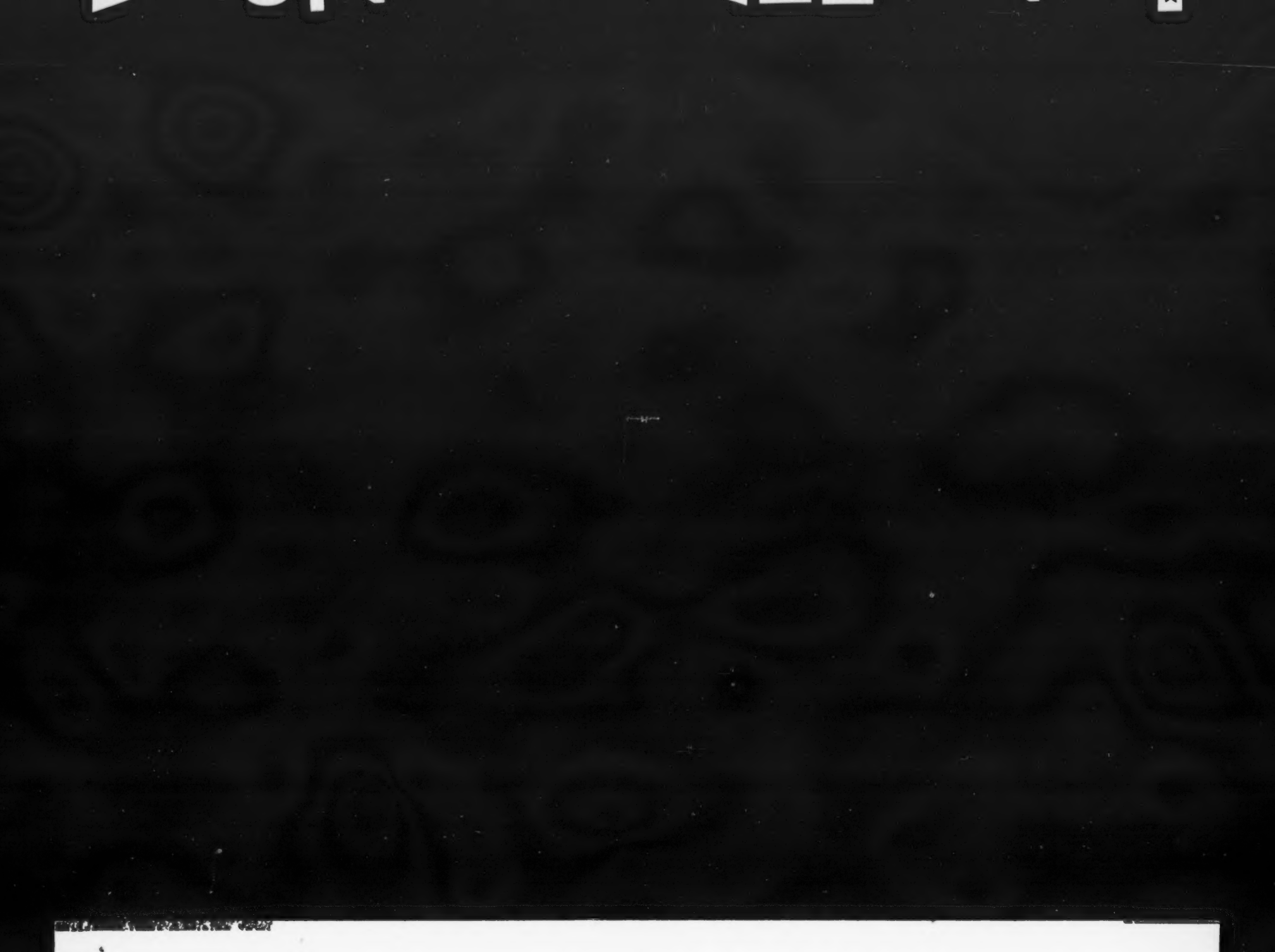
tion worked closely with the young women. The Jonesboro Kiwanis Club donated playground equipment for the veterans' children. The college made a nearby plot of land available for gardens. And, now that it is completed, what are we doing with our "Trailer City Club"? There are many uses.

Give Demonstrations

For specific instruction in homemaking practices, I meet with the wives once a month. In addition to general discussions, we have practical demonstrations. Food preparation and nutrition, stressing methods of preparing food which conserve as much food value as possible; sewing; home management; child care—all of these are topics for consideration. And a more interested, alert, and enthusiastic group could scarcely be imagined.

Between these meetings, the club room is used extensively. Since the trailers are too small for sewing machines, those in the "Trailer City Club" are available for the women's use at all times. In addition, many come and bring their hand sewing. The women have gained good ideas from one another during these sewing sessions. One woman used curtains to hide the work centers when they were not in use. Soon others were adapting the ideas to their own needs.

Bulletins Helpful

And for those who just drop in for a change of scene there are the Agricultural Extension Bulletins which cover subjects of interest and use to the women. Those on child care and feeding are extremely popular. Bulletins dealing with clothing are particularly helpful since they give detailed instructions for clothing and construction and remaking old garments.

Finally, the room provides a social center for veterans' families. Afternoons of bridge are particularly popular. Or it may be used merely as a place to bring friends, where they can visit in pleasant surroundings.